

Tennessee Valley Authority Strategic Plan

A Framework for the Future

October 1, 2003

DRAFT



Message from the TVA Board

Seventy years ago, TVA employees began a new venture, using their skills and creativity to help an entire region of our nation recover from the ravages of poverty and achieve prosperity. Today, TVA is facing fundamental changes to its business environment, and that same level of commitment and ability are now focused on continuing TVA's success in the future. Four fundamental changes to TVA's business environment are on the horizon:


- An emerging wholesale electricity market
- The option for TVA distributors to buy power from competing suppliers
- Exposure to market fluctuations and the associated revenue uncertainty that will naturally result as TVA's status as a monopoly supplier ends
- The need for increased financial flexibility, to be achieved in part by further reductions in TVA's debt.

To prepare for this more competitive world, TVA has implemented a strategic planning process that analyzes how the new market may function, what competitive pressures TVA will face, and how TVA must prepare now for success in the future. Working within the framework of a strategic plan and building on a track record of success, TVA employees can fulfill TVA's core mission with a new understanding of and appreciation for the challenges the future holds.

These challenges are not unique to TVA. Fiscally and strategically, the federal government, our nation's corporations, and the utility industry are dealing with cost pressures, competition for customers, the need to develop new technologies, and the need to efficiently manage all resources. Those of us at TVA see these challenges not as obstacles but as opportunities to raise the bar for our standards of performance and productivity. As a provider of public power, TVA serves a vital role in the Tennessee Valley region, and effective strategic planning today is the foundation for TVA's ability to serve that role in the future.

This TVA Strategic Plan is based on a rigorous analysis of possible market conditions and gives us a quantitative basis for better decision-making as we move ahead. As market conditions change in the coming years, TVA's strategic planning process will continue as an iterative and adaptive process. Concepts outlined in this plan will be applied to TVA's power supply planning and our annual business planning and budgeting process. TVA conducts ongoing power supply planning to forecast growth in the region's power needs and evaluate the best options for meeting those needs. Our annual business planning process focuses primarily on the next fiscal year and includes detailed performance plans and budgets. Taken together, these three planning processes support the effective management of TVA's operations today and for the long-term.

At all times, TVA's fundamental mission remains unchanged: to provide the Tennessee Valley region with affordable and reliable electric power, environmental stewardship, and leadership in sustainable economic development. As we prepare to carry out this mission in a new business environment, we will work closely with our customers and other stakeholders to make the best possible decisions for the region. We look forward to a successful future for TVA and the 8.3 million people of the Tennessee Valley.



Glenn L. McCullough, Jr.
Chairman



Skila Harris
Director



Bill Baxter
Director

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Introduction and Purpose

The Tennessee Valley Authority (TVA) is the nation's largest public power producer. Wholly owned by the U. S. government, TVA was established by Congress in 1933 primarily to provide navigation, flood control, and agricultural and industry development, and to promote the use of electric power in the Tennessee Valley region.

Initially funded largely through federal appropriations, TVA's power system has been entirely financed through power revenues for more than 30 years. In addition, TVA has received no federal appropriations since 1999, and TVA now funds its stewardship and economic development functions entirely from its power system revenues as well.

TVA has been able to finance its operations almost entirely through the debt capital markets due to its strong and stable market positioning. Under current law, which limits competition in the TVA service territory and which gives the TVA Board of Directors broad rate-making authority, TVA has enjoyed financial stability sufficient to fund large-scale investments and support all activities related to its broad mission.

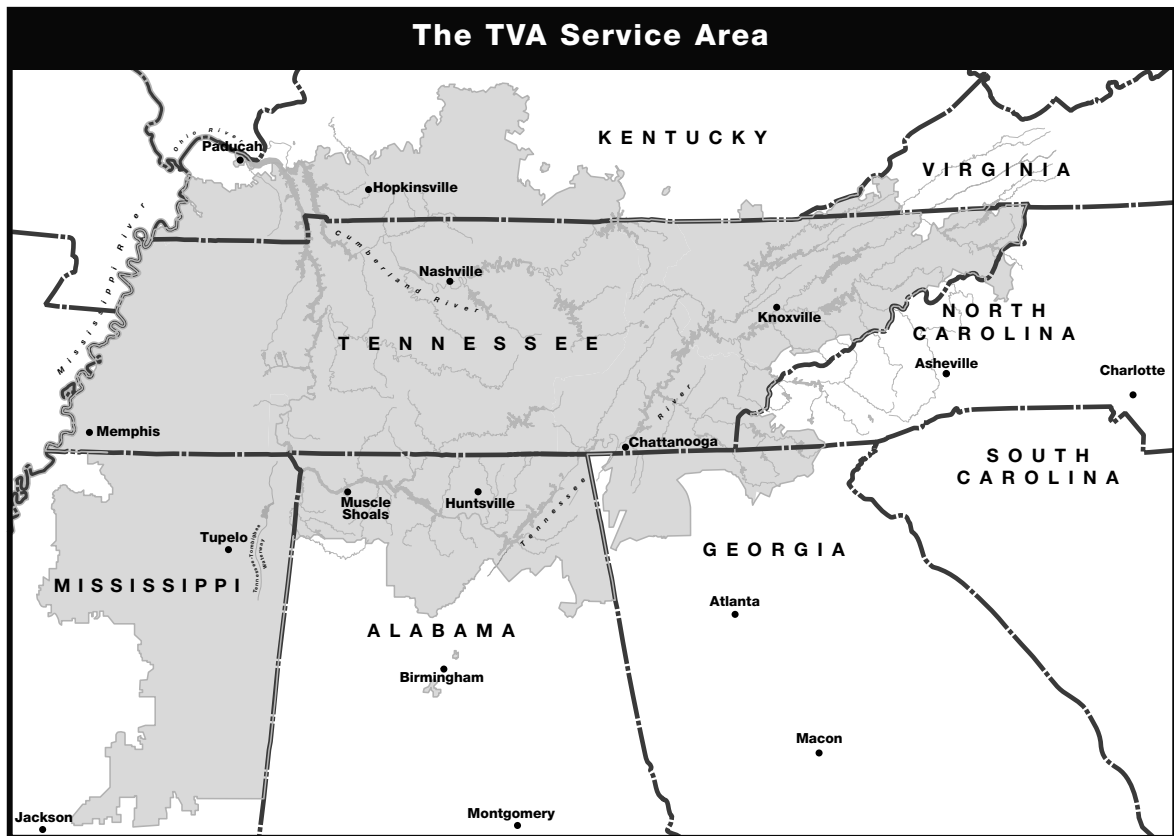
In the future, it is likely that the laws restricting competition will be modified, putting pressure on TVA's current strategic and financial model. Increased competition will have a significant impact on how TVA finances and carries out its diverse mission. In the near-term, TVA's strategic challenge is to accelerate its preparation for a more competitive future. At the same time, TVA must continue to supply all energy requirements for our distributors until legislation opening up electricity markets in the Valley is enacted.

The purpose of this strategic plan is to establish a new strategic and financial direction for TVA, by identifying where we need to go in order to prepare for competition, and how, in general terms, we should try to get there. It is not intended to address traditional resource planning issues such as forecasting future load requirements and assessing supply or demand alternatives for meeting those needs. Rather, the plan is intended to provide a framework within which those types of decisions can be made in the future.

Mission

TVA plays a vital role in improving the quality of life in the Tennessee Valley through the three interrelated parts of its mission:

- **Energy Supply** – TVA is the largest public power producer in the nation and provides reliable, low-cost power for the residents and businesses in the Tennessee Valley.
- **Environmental Stewardship** – TVA manages the Tennessee River System, appropriately balancing the benefits of navigation, flood control, power production, water supply, water quality, recreation and land use.
- **Economic Development** – TVA further promotes economic development by providing technical assistance, research data, and funding assistance to communities and businesses.



TVA supplies electricity for 8.3 million people in the 80,000-square-mile, seven-state TVA service area. Along with affordable and reliable power, TVA delivers value to the regional economy by supporting a thriving river system and promoting economic growth.

Changes in the Business and Regulatory Environment

By the late 1990s, the nation seemed to be well on its way to restructuring wholesale electricity markets. About half of the states had plans to open their retail markets to competition. In the spring of 2000, it appeared that consensus might be within reach on legislation to achieve a comprehensive restructuring of the nation's electric power industry. Over the next three years, however, several events occurred which raised concerns about the ultimate costs and benefits of restructuring, particularly for low-cost states.

- A serious power supply crisis struck California and the West, which, coupled with a seriously flawed market design, led to unprecedented price spikes and supply shortages.
- The collapse of Enron signaled a weakening of the financial viability of first the marketing and trading sector and then the independent power production sector, which was heavily debt-financed. Virtually all IPPs came under material financial distress, resulting in significantly eroded credit and, in many cases, the threat of bankruptcy.
- In July 2002, the Federal Energy Regulatory Commission (FERC) issued a comprehensive proposal to require standardized changes in the design and structure of electric power markets across all regions of the U.S., setting off a storm of controversy about the merits of the proposal itself, as well as the federal intrusion into areas – such as resource adequacy – that have historically been determined by the states. The following year, in a White Paper issued on April 30, 2003, FERC indicated that it was willing to allow regions considerably more flexibility on the timing of wholesale market implementation and on particular issues, such as granting native-load customers preferential access to the transmission system.
- In August 2003, the Northeastern U.S. and Southern Canada suffered one of the worst blackouts in recent history. Nearly 62,000 MW of load was lost within a few minutes. Questions arising from the ongoing investigations surrounding the blackout might delay mandatory wholesale market reforms as the causes of the blackout and needed reforms are determined.

These market and regulatory developments have increased uncertainty about the effectiveness and ultimate outcome of electricity market restructuring in the United States. Despite the current uncertainty, we believe that wholesale competitive markets are going to continue to evolve. More specifically, for the purposes of developing this strategic plan, we believe that TVA must prepare for a future that brings four fundamental changes to our business environment:

First, the emerging wholesale electricity markets that surround TVA either already have or are expected to have many of the following core features:

- Independent, real-time operation of the regional transmission market, integrated with
- Voluntary day-ahead and real-time energy markets,
- Location marginal pricing to reflect locational differences in generation costs caused by transmission constraints, and
- Financial congestion revenue rights to allow buyers and sellers to hedge the cost of energy delivered to a particular location.

TVA must decide whether it should have a different market structure inside the Valley and attempt to interface with surrounding markets through seams agreements, or whether it should try to integrate more fully into a larger regional market. Either situation would pose special challenges and implementation costs.

Second, current law restricts TVA's ability to sell outside the TVA region and restricts the ability of other suppliers to sell power inside the TVA region. TVA must begin to prepare for a future where the laws restricting competition are modified, allowing distributors to choose other suppliers to meet their energy needs and allowing TVA to sell surplus power outside the region. Our planning must also reflect the possibility that TVA could remain the all-requirements supplier for the distributors in the Valley for an indefinite period of time.

Third, the foundation of TVA's financial viability – the effective monopoly position with respect to bulk power sales in the Tennessee Valley – appears likely to change. If other suppliers can provide services to distributors, our planning, pricing, and financial structure must adapt to the potential reality that investments in long-lived facilities will face market risk.

Fourth, the cyclical and capital-intensive nature of unregulated power generation poses significant financial risk and will require a more liquid and financially secure financial structure than the 80- to 100-percent debt financing tested by merchant generators in the early phases of deregulation. As a result, TVA must reduce its debt and develop an approach to financing that is more flexible than it has needed in the past.

River System Operations and Stewardship Functions

TVA manages the Tennessee River and reservoir system, the fifth largest river system in the nation. In doing so, TVA balances the benefits of navigation, flood risk management, power generation, recreation, water supply and quality, and public land management. TVA's multi-purpose mission provides many advantages to the people of the region. The way TVA dams are operated is unique among river management systems in the world. All 49 of the dams in this watershed work as a balanced, integrated unit to unite energy and economic development interests across state boundaries around a single ecosystem.

The TVA power system was designed to work in an integrated manner with the Tennessee River. While operating within the constraints of flood control, navigation, minimum summer reservoir levels, and water quality requirements, TVA is able to optimize the use of water to generate electricity and to cool fossil and nuclear plants, allowing us to ensure hydro and thermal power plants can stay online and operate at maximum output when the power is most needed. Unless the system is managed as an integrated whole, water is wasted and efficiencies are lost.

TVA manages 11,000 miles of public shoreline to maintain the integrity of the reservoir system. TVA also maintains flowage easements and uses its permitting authority for structures along the river to ensure that flood control, navigation, and power production are not impaired. TVA also manages 293,000 acres of public land to support wildlife, recreation, and water quality.

In October 2002, TVA launched a two-year effort to determine whether changes in its reservoir operating policy would produce greater overall public value. This study was initiated in response to recommendations from public groups, individuals, and other entities such as the Government Accounting Office, TVA's Office of Inspector General, and the Regional Resource Stewardship Council, a federal advisory committee chartered by TVA. In support of this study, TVA has developed new analytical tools that will make improvements in our ability to optimize benefits from the reservoir system. After analysis of public input is completed, the TVA Board of Directors will decide whether the current operating policy will be changed and how any changes will be implemented.

Generation

TVA has a well-diversified portfolio of generation assets. Historically, TVA has invested in plants with high capital costs and low fuel and operating costs. Compared to surrounding regions, TVA has roughly the same amount of coal-fired capacity (about half), but twice as much nuclear, four times as much hydro, and less than half as much natural-gas fired capacity. TVA also has approximately 6 MW of wind, solar, and methane-gas generation capacity that supports its Green Power Switch Renewable energy program. At present TVA is a net purchaser of energy, which creates some expense risk and limits off-system revenue opportunity.

Table 1. Generation Capacity By Fuel Type, TVA vs. Nearest NERC Regions

Type of Capacity	Nearest NERC Regions (excluding TVA) (%)	TVA (%)
Coal	47	49*
Hydroelectric	5	18**
Nuclear	11	18
Natural Gas/oil	36	15
Other (wind, solar)	1	<1

Note: Based on 2002 net winter capacity.

** Includes capacity contracted by TVA from the two-unit Red Hills Generation Plant operated by Choctaw Generation, LP.*

*** Includes Raccoon Mountain Pumped Storage, capacity from the U.S. Army Corps of Engineers projects on the Cumberland River (Southeast Power Administration), and customer-owned hydro generation (Tapoco).*

Sources: North American Electric Reliability Council (NERC) regions, excluding TVA: RDI Outlook for Power, 1st Quarter 2003; TVA data: 2003 TVA Fact Book.

Based on data for 2001, TVA's prices are about average compared to utilities in surrounding regions, which are relatively low cost. In addition, TVA prices are less susceptible to variations in highly volatile natural gas prices than other generation within the region. However, as TVA's load grows, there is increasing exposure to the price of purchased power, which is heavily influenced by gas prices.

TVA's historic strategy of building a fleet of generation plants to produce stable prices made sense when TVA could assume that it would remain the all-requirements supplier of virtually all the distributors in the Tennessee Valley. Capital-intensive investments could be made with confidence that the cost of the investments could be collected over very long periods of time.

Like other capital-intensive commodities, however, electricity markets are subject to boom-and-bust price cycles. When distributors can choose other suppliers, future revenue streams will be less certain than in the past, and evaluations of capital intensive plants will need to reflect the new risks and greater uncertainties that markets will bring.

Competition itself will bring even greater pressure to reduce costs, but at the same time require new investment in metering, control, and telecommunications capability in order to facilitate efficient market operations. Moreover, the TVA plants themselves are aging and will require new capital investment to maintain performance and availability as well as to ensure compliance with environmental regulations.

Viewed broadly, the overall operating and financial priorities of TVA's generation business must be to:

- Maintain safe, reliable, low-cost operations
- Ensure compliance with environmental laws and regulations
- Produce power that is competitive with the market in which TVA will operate
- Generate operating cash flow sufficient to retire debt, make debt-service payments, and meet future capital requirements
- Align pricing and investment planning with the evolving legal framework governing competition.

The Fossil Fleet

TVA's fossil fleet (six combustion turbine plants and 11 coal plants) has achieved impressive availability levels in recent years. For example, the fossil system production levels in FY2002 were the fifth highest in its history. However, given the age of the fleet – eight out of TVA's 11 coal plants are more than 40 years old – such performance will be difficult to sustain without additional investment.

The major challenge facing all coal-fired generation in the United States is the cost associated with current and potential clean air regulations. The current Clean Air Act (CAA) includes many sections that require emission reductions at coal-fired power plants, including Title IV (Acid Rain Program), National Ambient Air Quality Standards (NAAQS), Regional Haze, and Air Toxics. New Source Review may also require additional reductions. From 1977 through 2001, TVA spent approximately \$3 billion on equipment to control emissions of the particulates SO₂ and NO_x. From 2002 through 2010, TVA estimates it may need to spend another \$2.6 billion to further control emissions of SO₂ and NO_x as required by the current CAA.

TVA believes that even more stringent environmental regulations and, therefore, higher compliance costs are likely in the future. This would require additional investment in a time when TVA views it as imperative to retire debt on a net basis. TVA management, in consultation with experts throughout the industry, keeps abreast of the evolving requirements of environmental regulations and develops and revises strategies for future compliance. A central part of that evaluation is to ensure that investments in environmental controls do not render generating units uncompetitive in a wholesale electricity market. If other alternatives – such as purchasing power from gas-fired combined cycle units – turn out to be less costly than environmental controls for some plants, the alternatives would be considered.

Nuclear

TVA's three nuclear plants provide more than 5,700 MW of capacity. The nuclear plants have performed well over the past five years, with fleet annual average capacity factors greater than 90 percent from FY 1998 through FY 2002. In addition, all three plants have received excellent ratings from the Institute of Nuclear Power Operations (INPO).

In 2002, TVA began work to bring the Browns Ferry Nuclear Plant Unit 1 reactor back online at a projected cost of \$1.8 billion. We expect this unit to provide more than 1200 additional MW when it becomes operational in 2007. Browns Ferry Unit 1 is expected to have a low operating cost and is projected to reduce TVA's delivered cost of power.

TVA's nuclear plants are newer than most of its fossil and hydro units. Browns Ferry and Sequoyah were completed in 1977 and 1982, respectively. Watts Bar was completed in 1996. Further, TVA has invested several billion dollars in the recovery and refurbishment of Browns Ferry units 2 and 3 in the early to mid-1990s and Sequoyah units 1 and 2 in the late 1980s.

TVA's nuclear plants will require ongoing capital investment to maintain plant reliability and performance. In addition, nuclear plants occasionally experience high, one-time costs to address new regulatory requirements or design-specific plant aging and degradation. A current example is the replacement of steam generators for pressurized water reactors due to long-term corrosion of the tubing material.

TVA replaced the steam generators at Sequoyah Unit 1 during the spring 2003 outage. TVA plans to replace the steam generators at Watts Bar in 2006. Any replacement of the steam generators at the remaining pressurized water reactor, Sequoyah Unit 2, is not projected to occur before 2010, but will likely be required prior to the expiration of the current plant license in 2021.

Hydro Capacity

TVA's 29 hydroelectric plants, one pumped storage plant, hydroelectric capacity from the U.S. Army Corps of Engineers projects on the Cumberland River, and customer-owned hydroelectric capacity provide 18 percent of TVA's total system capacity and play a unique role in overall system operations. Hydro plants have a number of advantages relative to other types of generation. Hydro plants have lower operating costs and quicker response capability, and can provide critical ancillary services.

Hydro resources must be dispatched to balance multiple objectives - flood risk management, navigation, water quality, and recreation, in addition to power generation. Hydro resources are also rainfall dependent and energy production can be greatly reduced during drought conditions.

Nevertheless, hydro resources — particularly the integrated operation of the river and power systems — are extremely valuable to the consumers in the Tennessee Valley. During the drought experienced in the Tennessee Valley over the past four years, TVA's integrated operation of its river and power system ensured that nuclear and coal units that rely on cooling water from the Tennessee River system could stay online while operating within regulatory limits, despite low flows and high temperatures.

Like other TVA generation, hydro plants are aging. The average actual age of all of hydro units is 65 years. TVA is in the midst of a long-term capital improvement program that will modernize the power production equipment at major hydro facilities. Modernization efforts to date have reduced the effective average unit age of 80 percent of TVA's hydro capacity from 57 to 30 years. The modernization program is scheduled to be completed by 2014.

Transmission

TVA has an extensive, robust transmission system with historically strong reliability and safety performance. TVA's 17,000 miles of transmission lines cover 80,000 square miles of service territory across seven states. This system was built to serve TVA's native load and to include sufficient interchange capability to ensure regional reliability. Similar to surrounding transmission systems, it was not designed to accommodate much larger, inter-regional electricity markets that are evolving at different rates across the country.

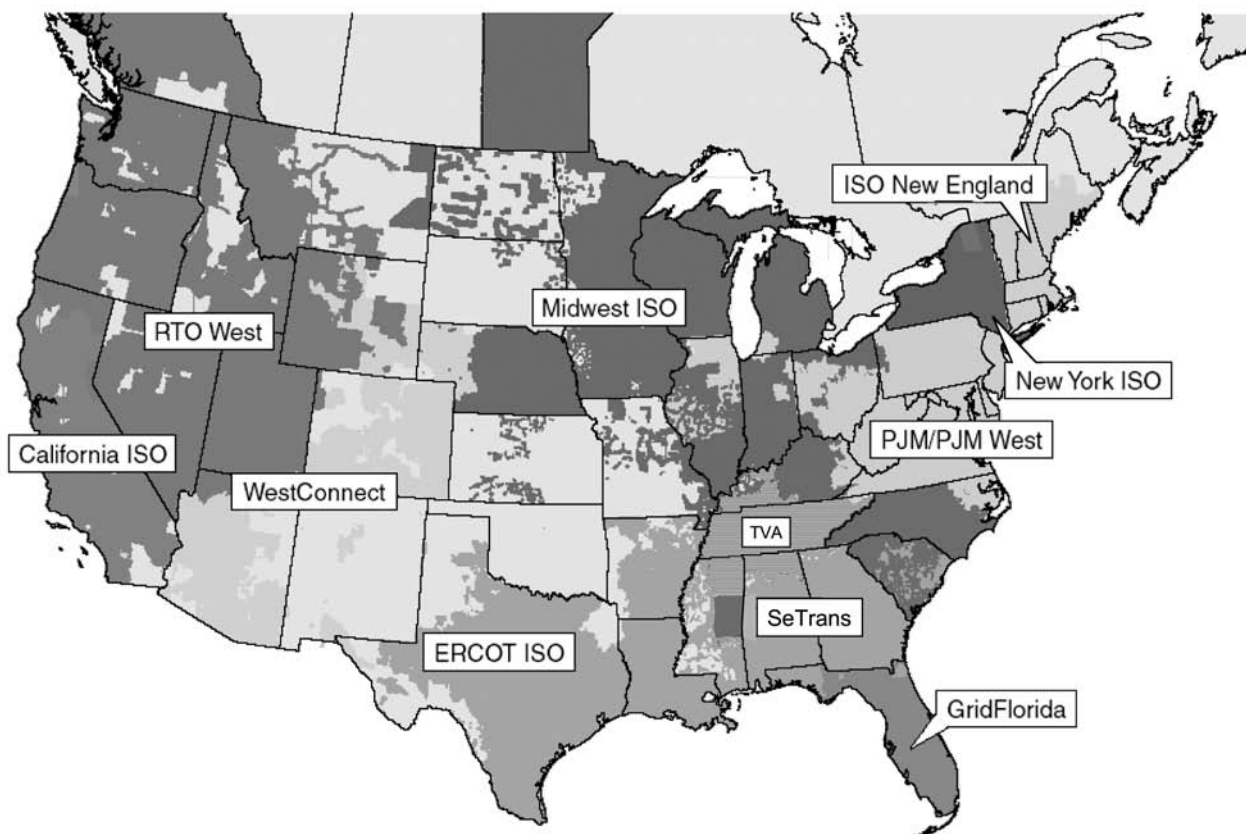
The future pace of wholesale market development is highly uncertain at this time. Nevertheless, it is clear that increasing wholesale competition will pose major challenges for transmission systems across the country, including TVA's. The strategic challenges can be grouped into two broad categories.

First, who will pay for the future transmission investments needed to accommodate the larger and longer-distance power flows that come with more open wholesale markets? By the summer of 2003, more than 37,000 MW of new independent power projects (IPPs) had come online in the Southeastern Electric Reliability Council (SERC) region – 9,135 MW were connected to the TVA transmission system alone, with an additional 1,455 MW to be connected by summer 2004. All but 480 MW of this IPP capacity is gas-fired. Most of these generators have chosen not to invest in the system upgrades necessary to ensure long-term firm transmission rights, relying instead on the availability of non-firm service, which is subject to curtailment during critical periods. As more IPP capacity comes online, an increase in curtailment of IPP transmission service will occur more frequently unless the transmission system is upgraded to accommodate the larger volumes. Ensuring fair and workable mechanisms for participant funding of such upgrades is now a critical priority for TVA and other transmission providers in the Southeast.



Approved RTOs and Existing ISOs

Utility Participation as of July 2003



Note: Map includes service territories of transmission-dependent utilities.

This map is available to EEI electric company members at http://www.eei.org/products/rto/maps/rto_map.pdf (PDF) or [rto_map.ppt](#) (PowerPoint)

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The second major challenge is to determine how TVA should interface with the large and evolving regional markets that surround the TVA System. Viewed broadly, the questions are:

How should TVA provide transmission service within the Valley, especially when distributors have the ability to choose other suppliers?

- Should we continue to provide service as we do today, or should we develop services more consistent with the developing (Midwest Independent System Operator, or MISO) and proposed (SeTrans) markets that surround us, i.e., implement location marginal pricing and financial congestion revenue rights?
- How should TVA implement native-load preference in the future?

Should we interface with surrounding markets through seams agreements, or should we try to integrate more fully into a larger regional market?

TVA has already begun work to ensure better reliability coordination and a seamless wholesale market in the Mid-South. To address transmission reliability, congestion management and interchange activities, TVA signed a memorandum of understanding with Southern and Entergy in July 2001, and with MISO in August 2001. Beginning in October 2001, TVA formed a Public Power Partnership with Associated Electric Cooperative, Big Rivers Electric Cooperative, and East Kentucky Power Cooperative on a number of initiatives to strengthen regional transmission operations.

To explore better ways to coordinate reliability operations and facilitate broad, seamless transmission service and energy markets consistent with a safe, reliable transmission grid, TVA signed an MOU with the Pennsylvania-New Jersey-Maryland ISO (PJM) and MISO in April 2003. We expect work on developing more efficient, reliable wholesale power markets to continue for years to come.

Given the current state of market developments, the strategic priorities for the TVA transmission business will be to:

- Maintain safe, reliable, low-cost transmission service
- Complete ongoing assessments of the best ways to provide transmission service in the Tennessee Valley, price transmission congestion and losses, and interface with surrounding markets as they evolve
- Make those investments (such as new metering to increase the visibility of the system) that are likely to be required regardless of which market model ultimately prevails.

Customer Products and Services

TVA currently provides two types of service for its 158 distributors and 62 large, directly served customers:

- Bundled, firm service, priced at Valley-wide “postage-stamp” rates for different end-use rate classes (residential and various general service classes)
- Interruptible service for large customers.

In addition, TVA provides unbundled transmission service (both firm and non-firm) for other utilities and IPPs who wish to purchase transmission service only.

Bundled services include a wide variety of services that could be purchased separately in a market or which customers could decide to provide themselves:

- Generation supply
 - Long-term capacity planning
 - Short-term least-cost dispatch
 - Market purchases
- Transmission
 - Coordination
 - Bulk power system reliability
 - Congestion management
- Supply risk management
 - Short-term
 - Sales volume risk due to weather, economic conditions, etc.
 - Reliability (balancing services, etc.)
 - Price risk
 - Long-term
 - Reliability (capacity reserves)
 - Price risk (hedged through plant construction, fuel contracts, or power purchase agreements).

TVA’s current approach to service design and pricing works well in a monopoly world, but it will not work well in a market where customers can choose alternative suppliers. First, charging all customers a system-average postage-stamp rate for services encourages other suppliers to cherry pick customers who cost less than the system average to serve. Second, some customers may not want the full bundle of services that is sold today. For example, some customers may want:

- To buy some, but not all of their services from TVA, i.e., partial requirements service
- To provide their own risk management functions or acquire them from another source
- To have greater contracting flexibility than they have had in the past, i.e., multiple contracts with staggered terms, etc.

Adapting to a more competitive market will require TVA to develop new, more highly differentiated prices, services, and contract terms than we have needed in the past. Certain previously bundled services will need to be unbundled, and services will need to meet customers' needs and be price competitive. In addition, they will have to be equitable and be perceived as equitable.

In addition, TVA recognizes the need to develop and communicate clear policies on pricing and other terms for customers who leave and later want to return, and a clear value proposition for customers who stay and are willing to sign longer term contracts. Historically, TVA and distributors have not needed contracts to be complete with respect to all terms, conditions, and contingencies because the federal legislative framework provided context and bounds. As that framework evolves and greater choice is available to distributors, the relationship between TVA and customers will need to be defined in more detail through contracts.

Developing this new portfolio of services poses a significant design and cost challenge for TVA. It will require new tools for evaluating and quantifying risk, allocating costs across unbundled services, and for modeling the price of competitive alternatives. It will also require close collaboration with our customers during the design process to make sure that the services ultimately offered will actually meet their needs.

Economic Development

Part of TVA's core mission is to promote the economic prosperity of the Tennessee Valley. TVA helps the Valley prosper by providing reliable, low-cost power to the region. It also provides special services including technical assistance, research data, and funding assistance to communities and businesses.

TVA no longer receives any appropriated funds from the Federal Government for any of its activities, including economic development. All services are now funded through power revenues. The strategic question for economic development is how the costs of economic development services should be charged to communities who no longer buy their power from TVA, but who want economic development services to continue.

Financial Implications Going Forward

Part of TVA's core mission is to promote the economic prosperity of the Tennessee Valley. Historically, TVA has relied almost entirely on debt to fund power system investments and support all activities related to its broad mission. This financing approach has been very successful in the past, but it will be risky in a world where distributors can select other suppliers. Under competition, TVA's effective monopoly position in the Valley will erode and will bring more cost and revenue volatility. A financially prudent offset to this volatility is to build more financial flexibility into our balance sheet and income statement so that we can weather the greater volatility of revenues that will come with competition.

Based on extensive analyses of potential future market conditions, we believe that TVA's relative cost of power should be below regional market prices in most, but not all, future scenarios. Given TVA's generation mix, we believe that TVA would be vulnerable to revenue losses in a world of low gas prices and high reserve margins, for example. Even though low (less than \$3.00/MMBtu) gas prices seem highly unlikely at this point in time, to ensure TVA's long-term financial viability, we need to reduce debt levels so we can meet our fixed obligations even under relatively low-probability market conditions.

At present, TVA's statutory debt¹ is approximately \$25 billion. This debt level reflects the \$2.5 billion in debt reduction that TVA achieved over the period 1998-2002.

At present, there is considerable uncertainty about the ultimate outcome and timing of electricity market restructuring in the U.S. in general and in the Tennessee Valley in particular. Despite the uncertainty, the analysis supporting the development of this strategic plan has confirmed the need to increase financial flexibility. Because it is not possible to know either the exact future state of the market or the timing of its arrival, we are, after investments needed to maintain safety, reliability, and regulatory compliance, giving priority to the retirement of debt.

Debt reduction is not the only way to improve financial flexibility, nor is debt level the only measure of financial health. Other ways to improve financial flexibility would be to finance more investment through operating revenues, or to use certain rate indexing mechanisms to mitigate revenue volatility. Other measures of financial health include interest coverage ratios (the ratio of free cash flow to annual interest payments) and net interest expense as a percentage of revenue.

Nevertheless, accelerating debt reduction is a high priority. At this point, we are recommending a debt reduction target of \$3 to \$5 billion over 10 to 12 years. In deriving this target, we carefully considered the results of the market risk analysis and then used our best judgment to determine what we think TVA needs to achieve relative to what can be achieved over a 10- to 12-year time frame.

¹ Statutory debt includes bonds, notes, and other evidence of indebtedness as defined in the TVA Act.

Achieving any level of debt reduction will not be easy, especially given the cost pressures on the business. Annual debt reduction targets will be updated annually and reflect the careful balancing of TVA's priorities given its mission and the needs arising from changes in the market place — a necessary response to increased uncertainty. At a minimum our competing priorities include:

- Fulfilling our supply obligations by maintaining a safe and reliable asset base
- Maintaining reasonable rates
- Complying with current and future environmental regulations
- Paying down debt
- Preparing for competition.

Conceptually, the only ways to accelerate debt reduction are to increase the productivity of our assets, raise prices, or reduce costs. In reality, determining the actual steps to be taken is much more complicated. For example, simply raising prices can be counterproductive in a world where customers can choose other suppliers. Alternatively, further cost reduction can be risky if it cuts into critical maintenance needs of plants or if it would jeopardize TVA's ability to meet environmental regulations.

We believe that a combination of steps will be required because there is no single “silver bullet” solution to reducing debt. The potential options that will be considered in combination and in the context of setting multi-year annual performance plans and budgets include the following:

- Continued emphasis on cost reduction through process improvements
- Asset improvements to increase performance
- Capital rationing
 - Deferring and/or canceling capital projects when necessary and appropriate
 - Synchronizing investment criteria with the changing portfolio of customer contracts and commitments
- Rate adjustments and rate changes consistent with changes in market and power supply conditions including, where appropriate, developing risk-sharing techniques that address the volatility of costs that TVA does not directly control.

Finally, TVA's trajectory toward achieving its financial goals will not necessarily be smooth. It may be possible to accelerate debt reduction if market conditions are favorable. Conversely, it may be necessary to slow them if conditions are adverse. Unplanned events also will cause targeted debt reduction to vary.

Summary

In preparing this strategic plan, we have addressed how potential changes in the market could affect TVA, our stakeholders, and the way we fulfill our mission. We have assessed TVA's financial viability under a wide range of potential future market conditions, and we have identified a number of steps that TVA needs to take to begin to prepare for a more competitive market.

Over the next several years, TVA needs to concentrate on four specific areas:

- (1) Developing new, more highly differentiated prices, services, and contract terms that more closely tie the cost and the risk of the product to its terms and pricing.
- (2) Addressing the range of issues related to wholesale market design and transmission pricing, including how TVA will interface with the markets that are expected to surround us, as well as how TVA will price transmission services within the Valley when distributors can choose other suppliers.
- (3) Accelerating debt reduction and driving to higher interest-coverage ratios in order to provide the financial flexibility needed to tolerate the higher levels of revenue and cost volatility associated with a more competitive market.

In addition to these initiatives, our planning must also reflect the possibility that TVA could remain the all-requirements supplier for the distributors in the Valley for an indefinite period of time. Therefore, while preparing for increased competition, TVA must also:

- (4) Maintain and operate its generation and transmission assets so that we continue to fulfill our supply obligations in a safe and reliable manner.

Finally, given the amount of work to be done, its cost, the potential magnitude of structural change that the industry could undergo, and the high potential for significant forecast error, the plan must be updated periodically as more information becomes available.

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